

CULPRIT LESION MORPHOLOGY IN ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION (STEMI): THE HORIZONS-AMI TRIAL VH-IVUS SUBSTUDY

i2 Poster Contributions

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Background: Characterization of culprit lesion morphology in vivo in pts with STEMI has not been performed.

Methods: HORIZONS-AMI was a dual arm factorial randomized trial in pts with STEMI. As part of a formal IVUS substudy, Virtual Histology (VH)-IVUS was performed in 166 culprit lesions in 158 pts either pre and/or post stent implantation. Fibroatheromas (FA) were lesions with >10% confluent necrotic core (NC). Those with >30° NC abutting to the lumen in 3 consecutive frames were classified as thin-cap FA (TCFA).

Results: Among 83 lesions with pre-intervention VH-IVUS, 79 (95%) were diagnosed as FA, including 56 (67%) VH-TCFAs. Of the 145 categorizable post PCI lesions, 141 (97%) contained a FA behind the stent, of which 104 (72%) and 21 (13%) had NC abutting up to the lumen or protruding into the lumen through the stent struts respectively. In addition 62 (37.3%) lesions had a TCFA at the stent edge with the majority (81%) of TCFAs continuing into the stent (Figure). These VH findings were not correlated to the pre/final TIMI flow or the presence of angiographic thrombus.

Conclusions: This study is the first to demonstrate that the lesion substrate for STEMI in humans is a fibroatheroma, most commonly a TCFA. NC also typically persists within the plaque after stenting and frequently abuts or protrudes into the lumen and/or is present at the stent edge. Further studies are warranted to determine the clinical implications of these findings.

